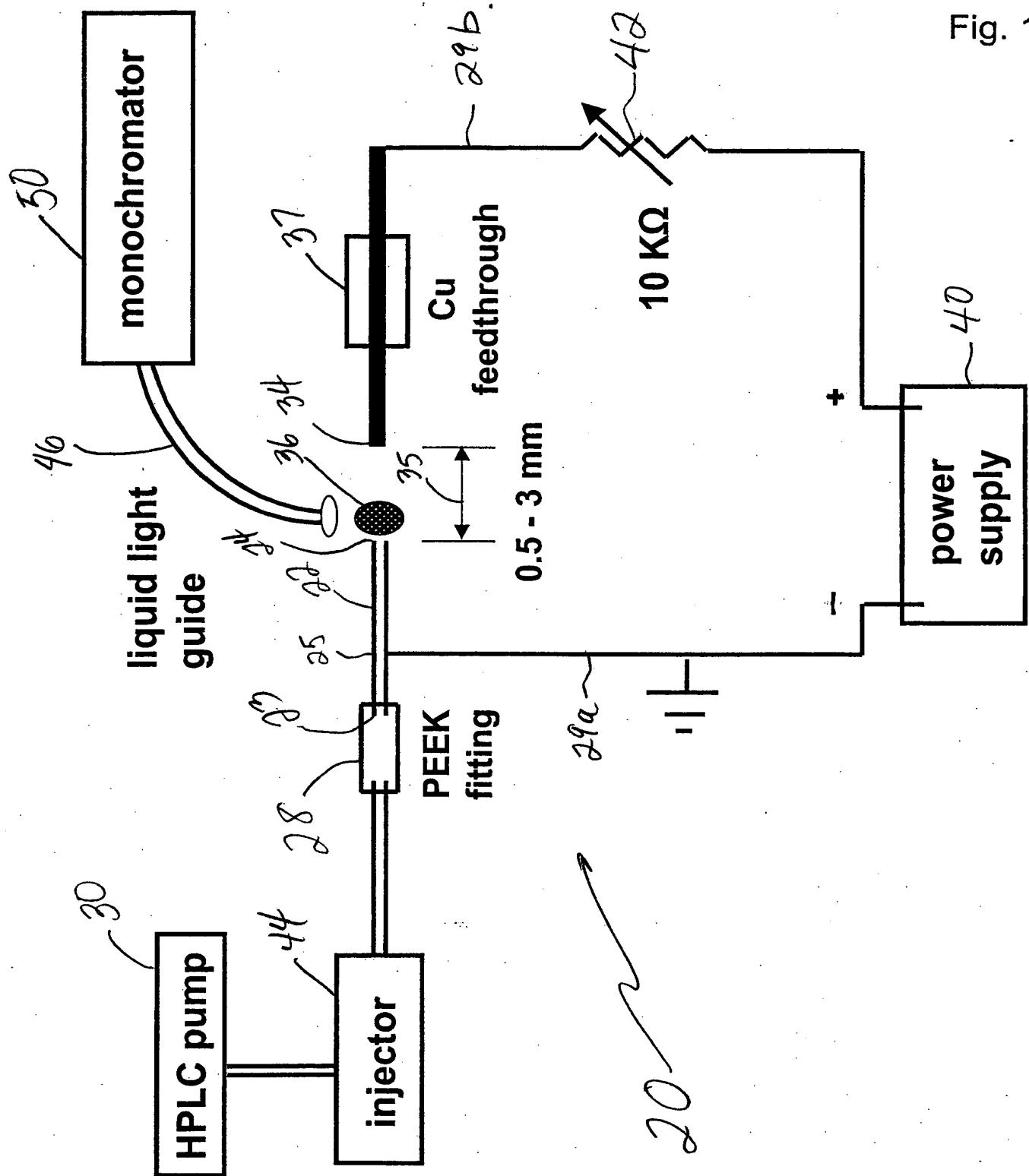


Fig. 1a



Basic LS-APGD Source Operation

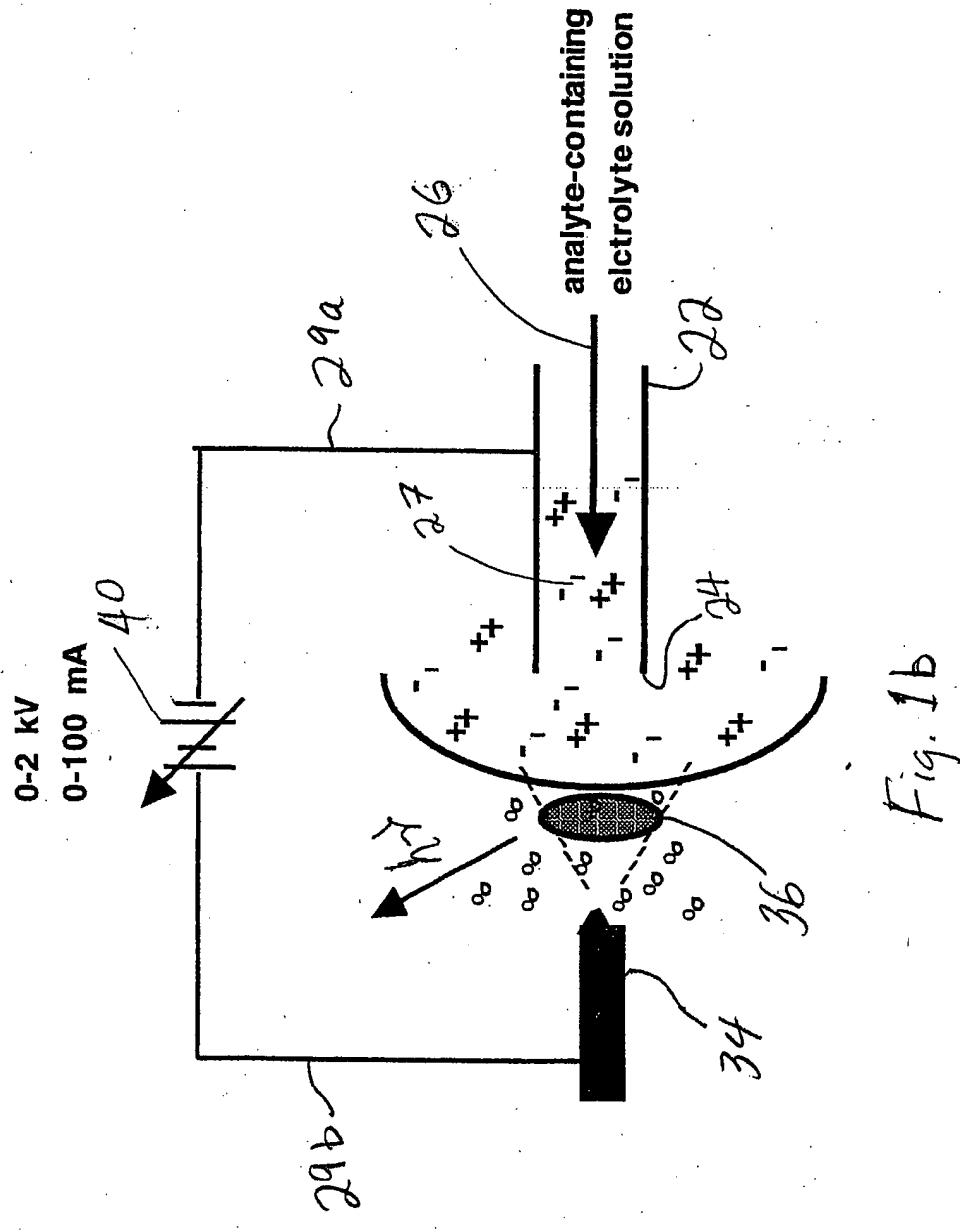


Fig. 1b

Proposed Implementation of LS-APGD with Microfluidic Devices

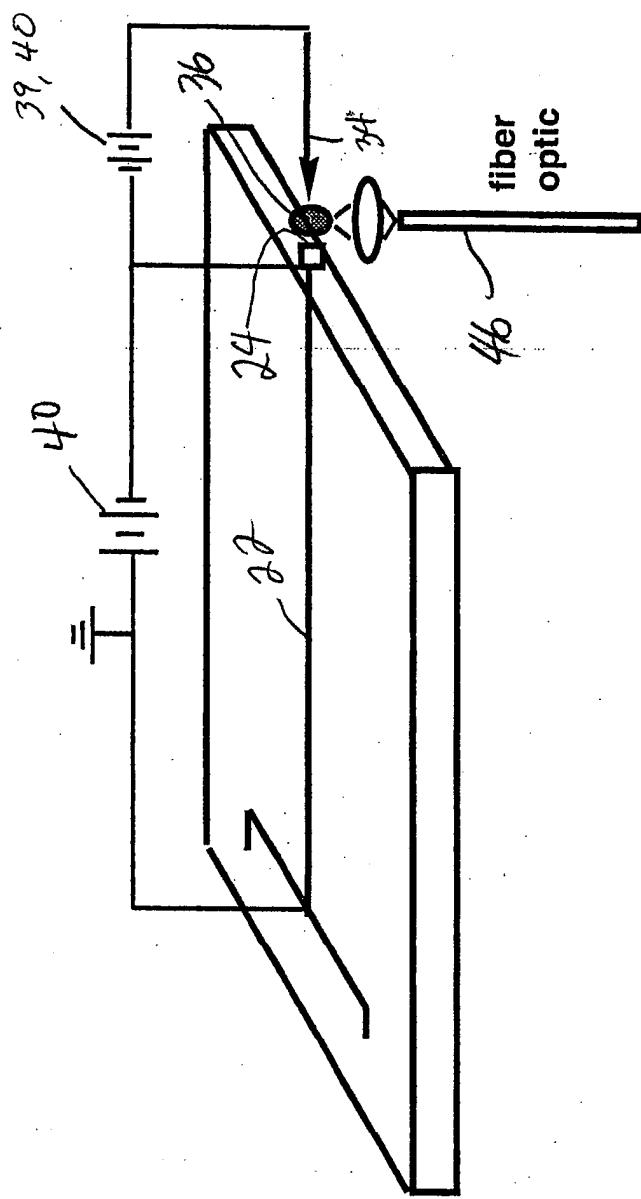


Fig. 1c

Fig. 2a

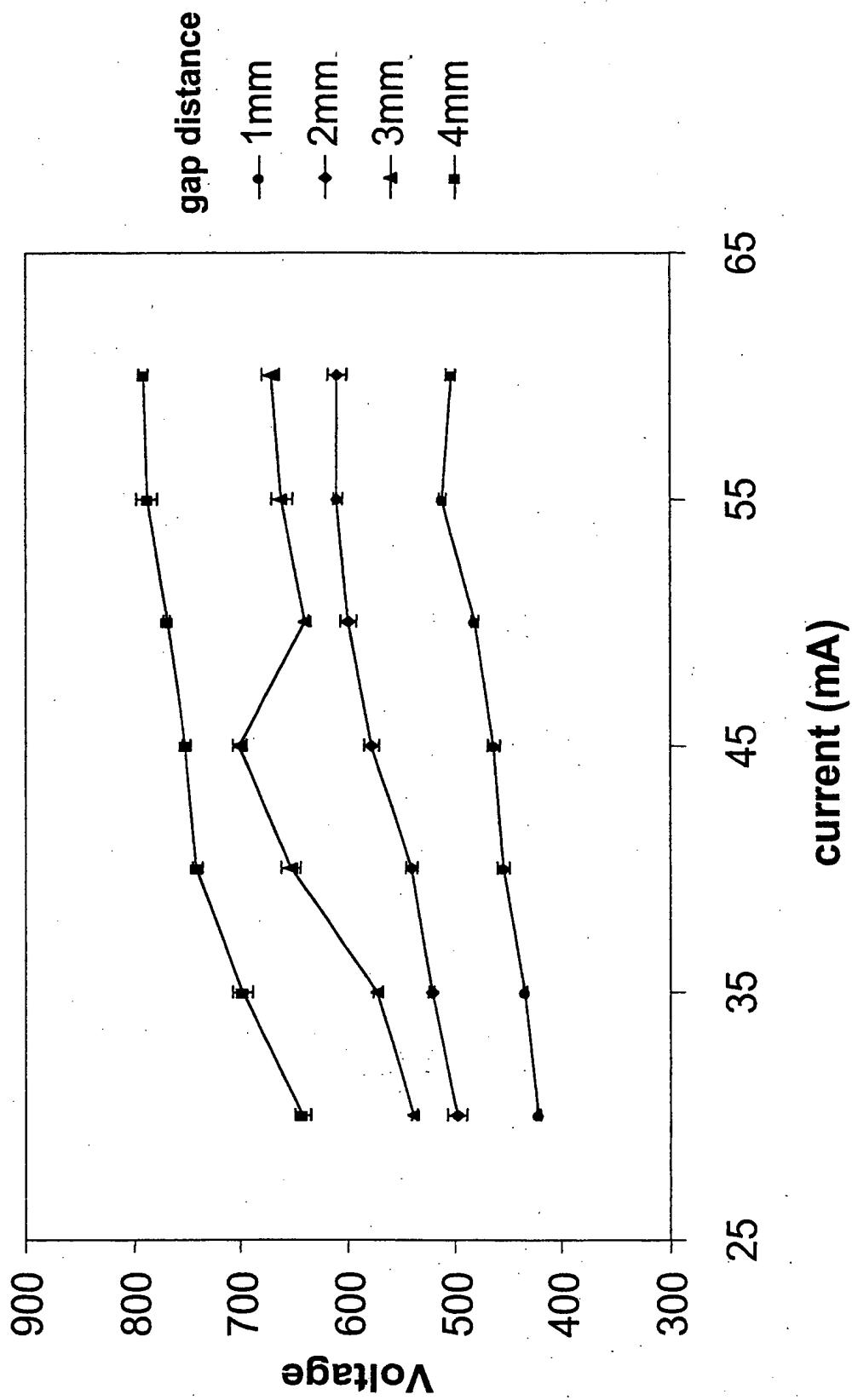


Fig. 2b

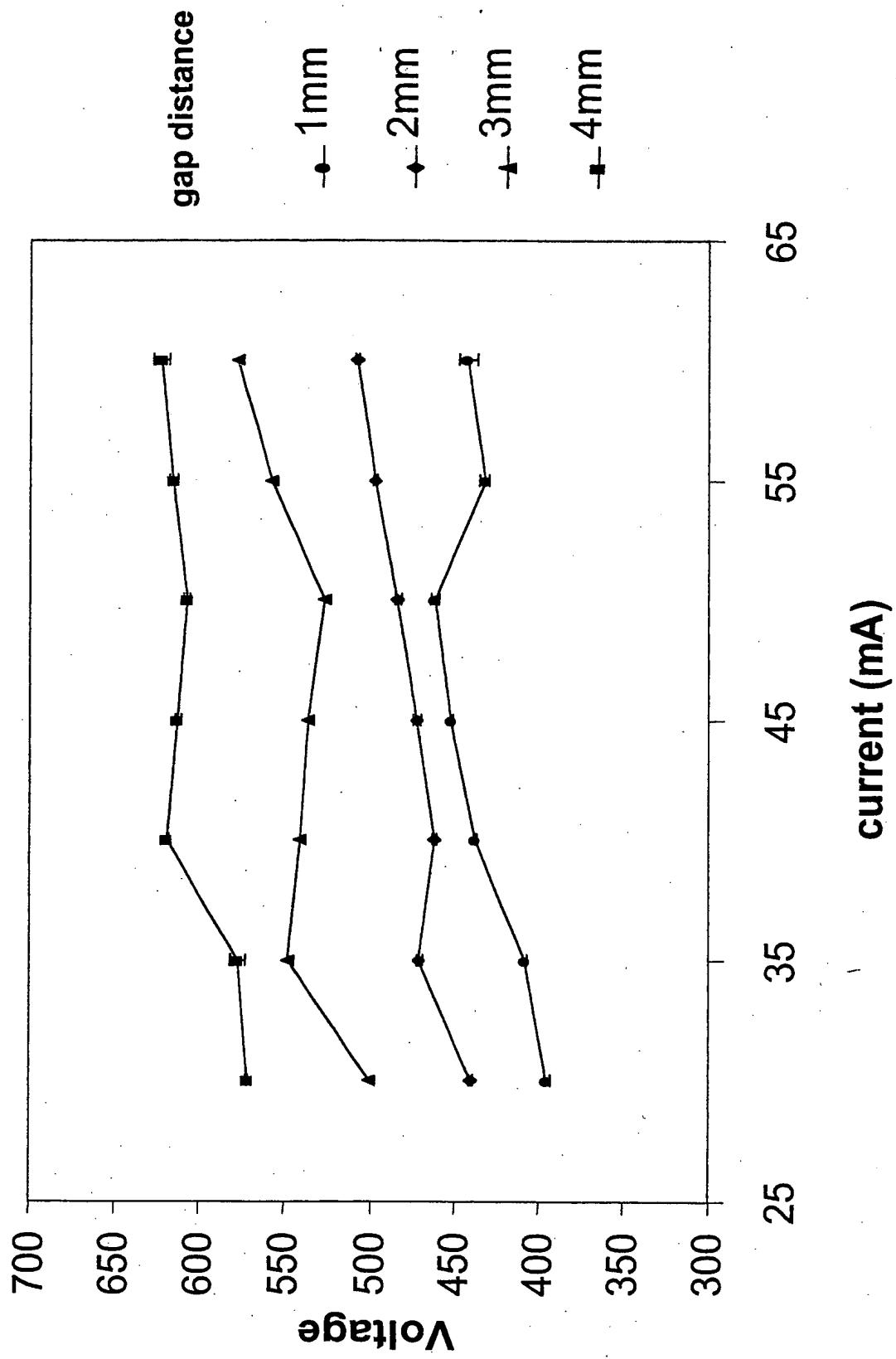


Fig. 3a

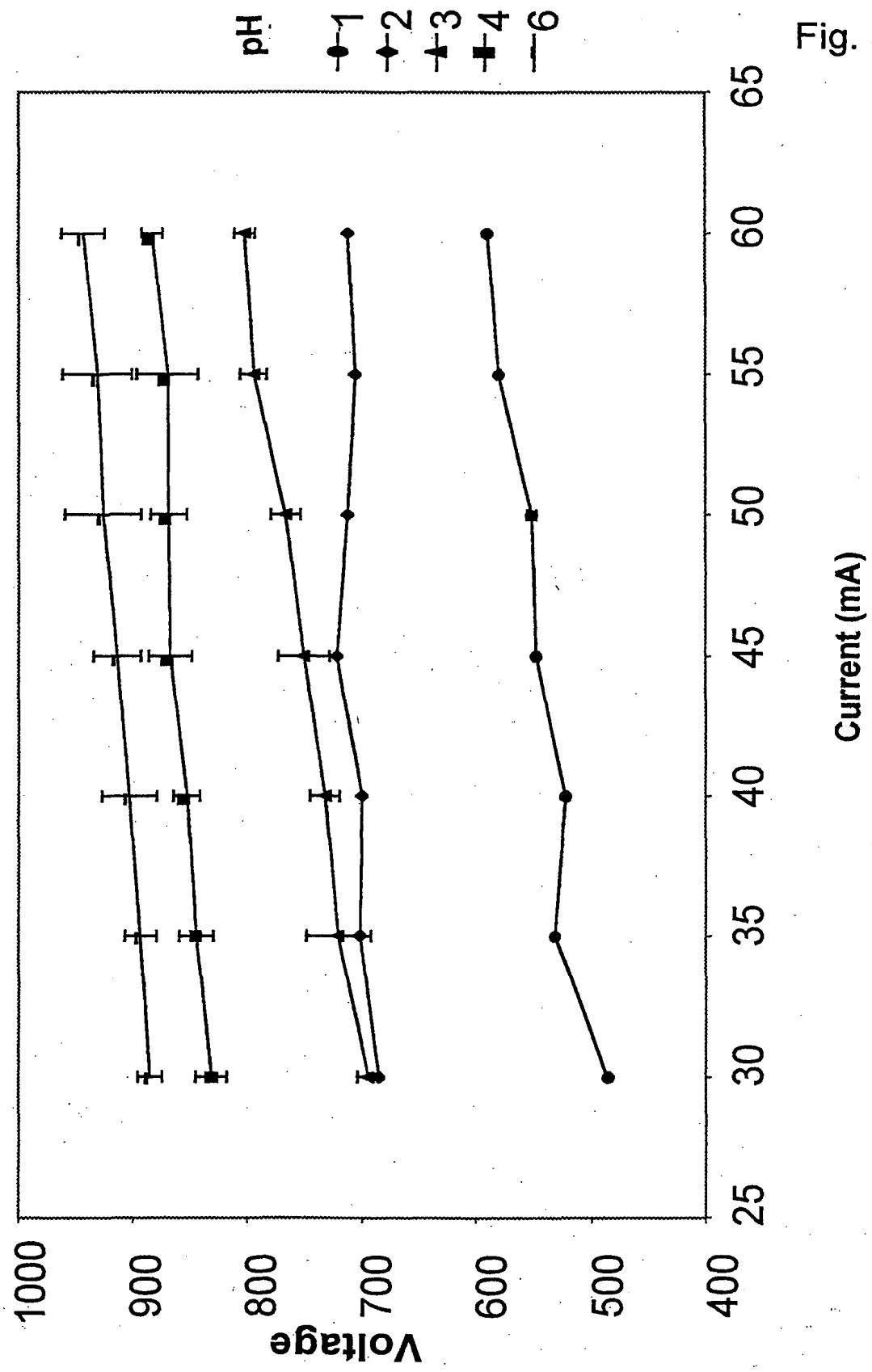


Fig. 3b

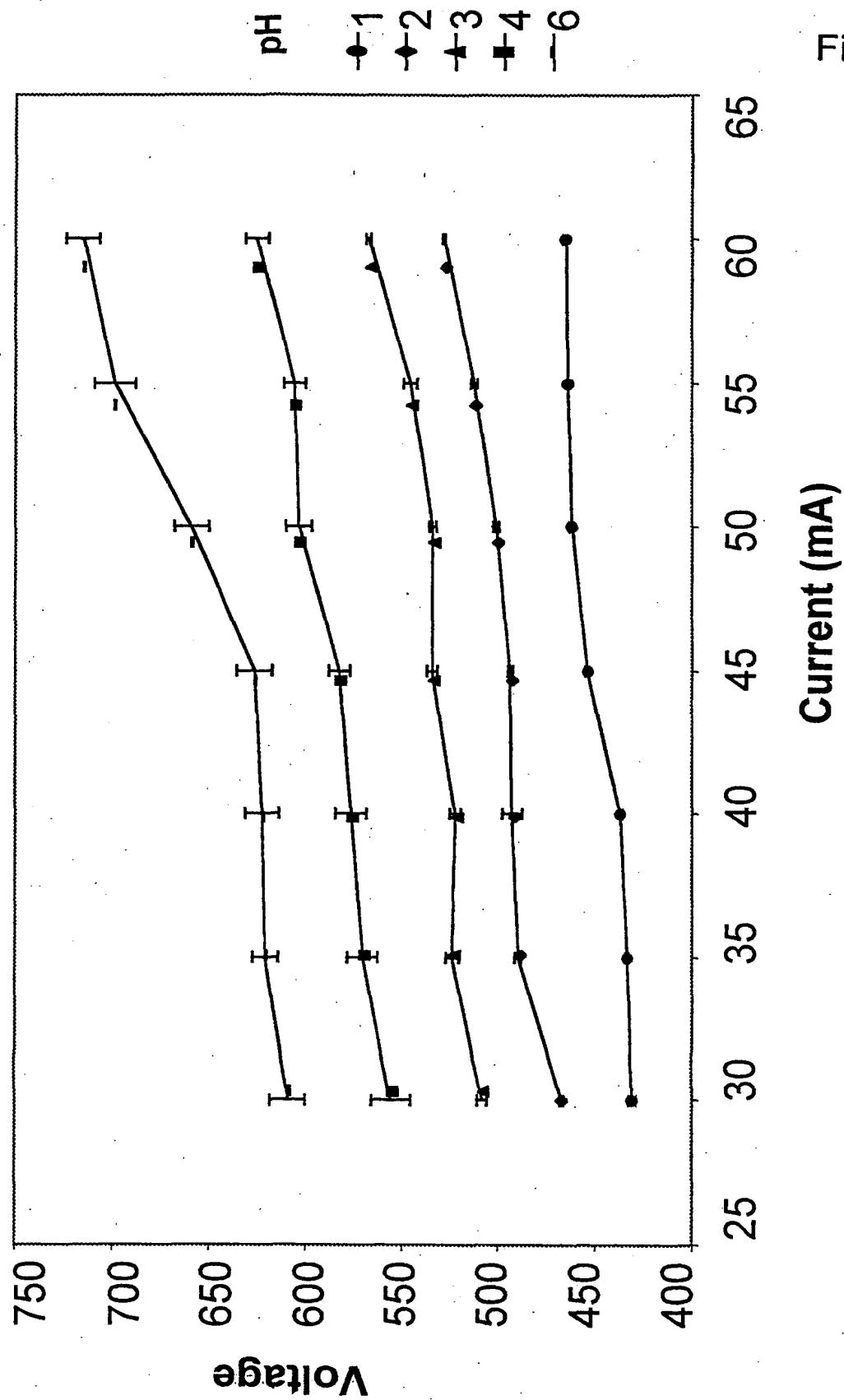


Fig. 4a

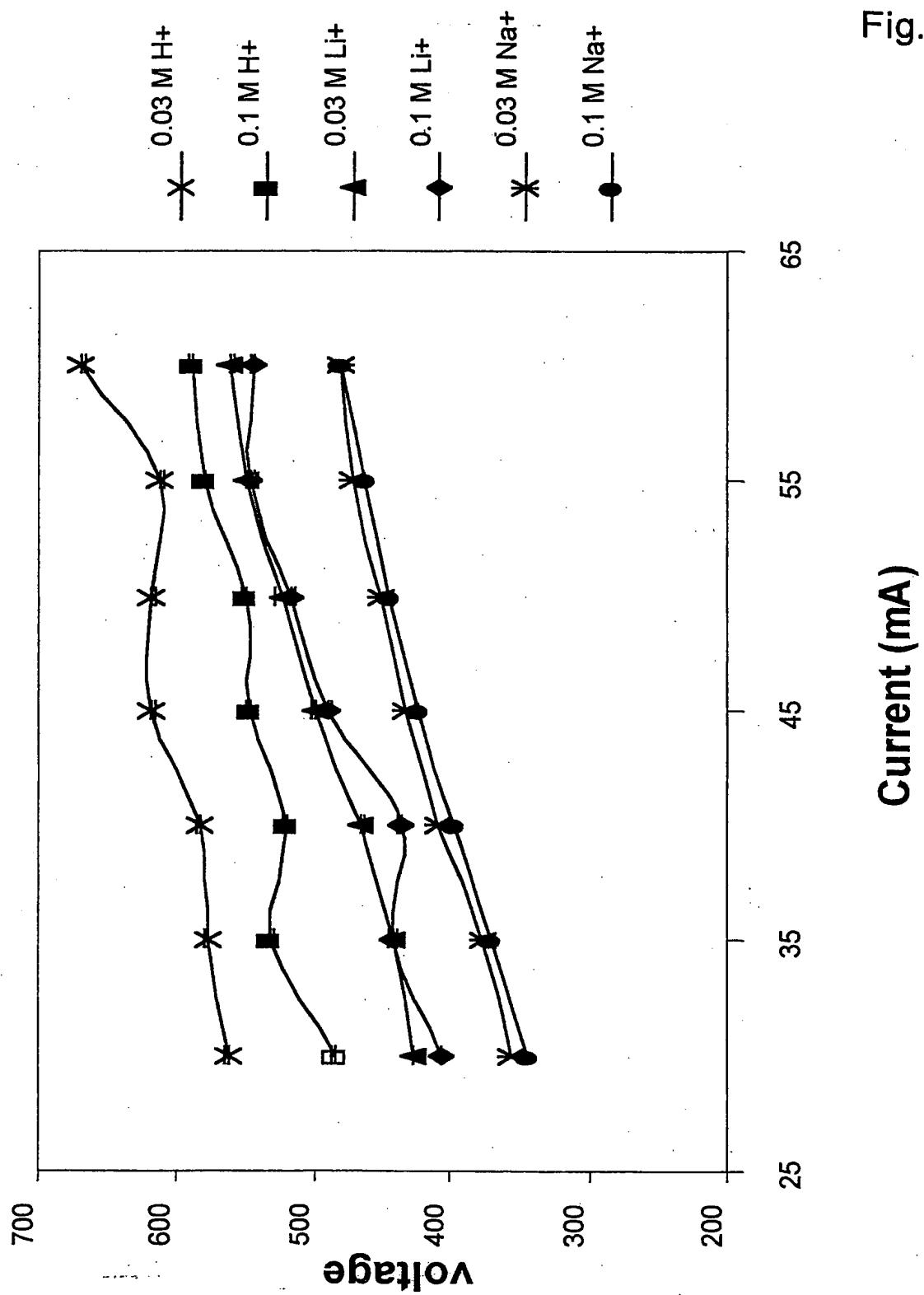


Fig. 4b

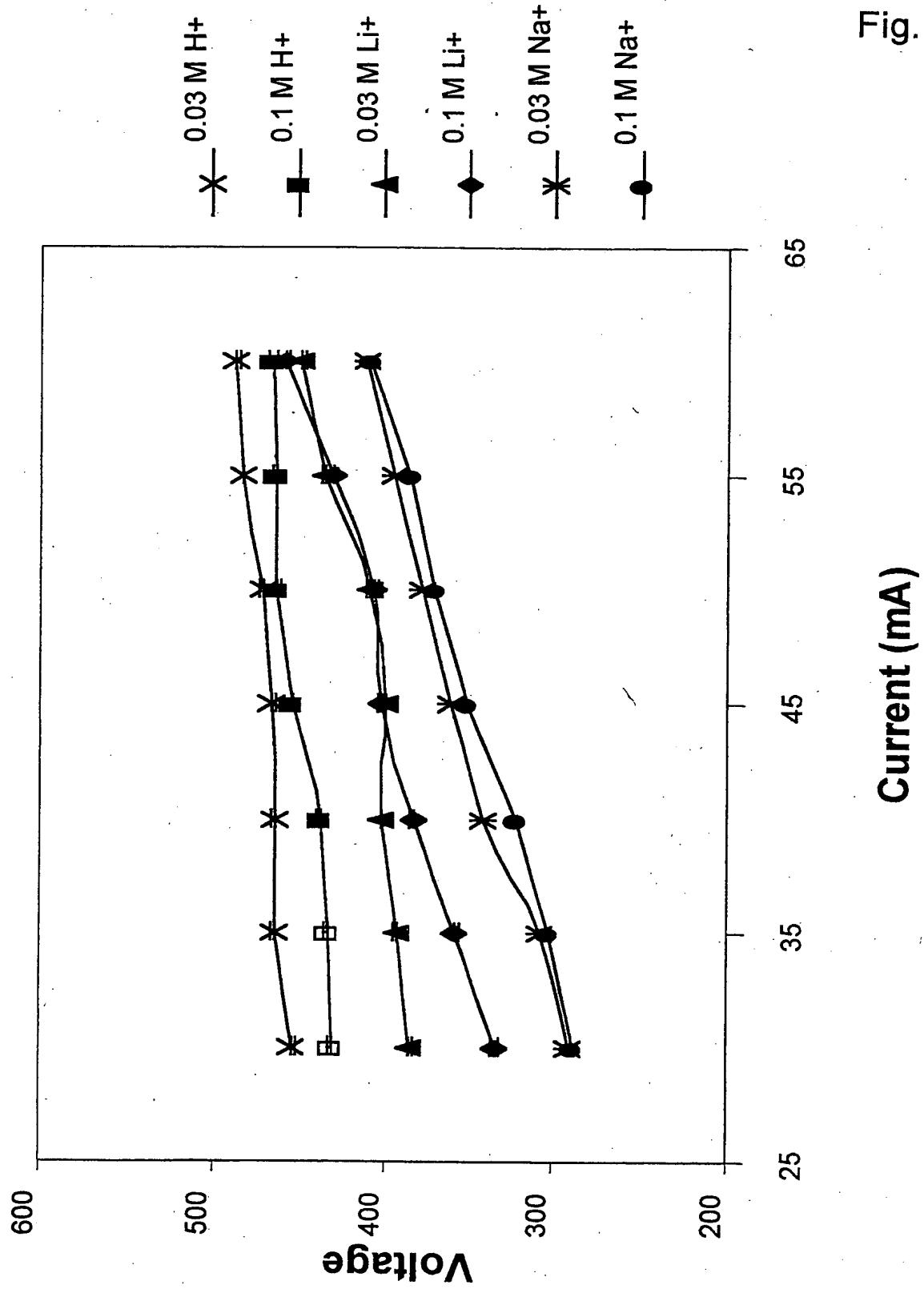


Fig. 5

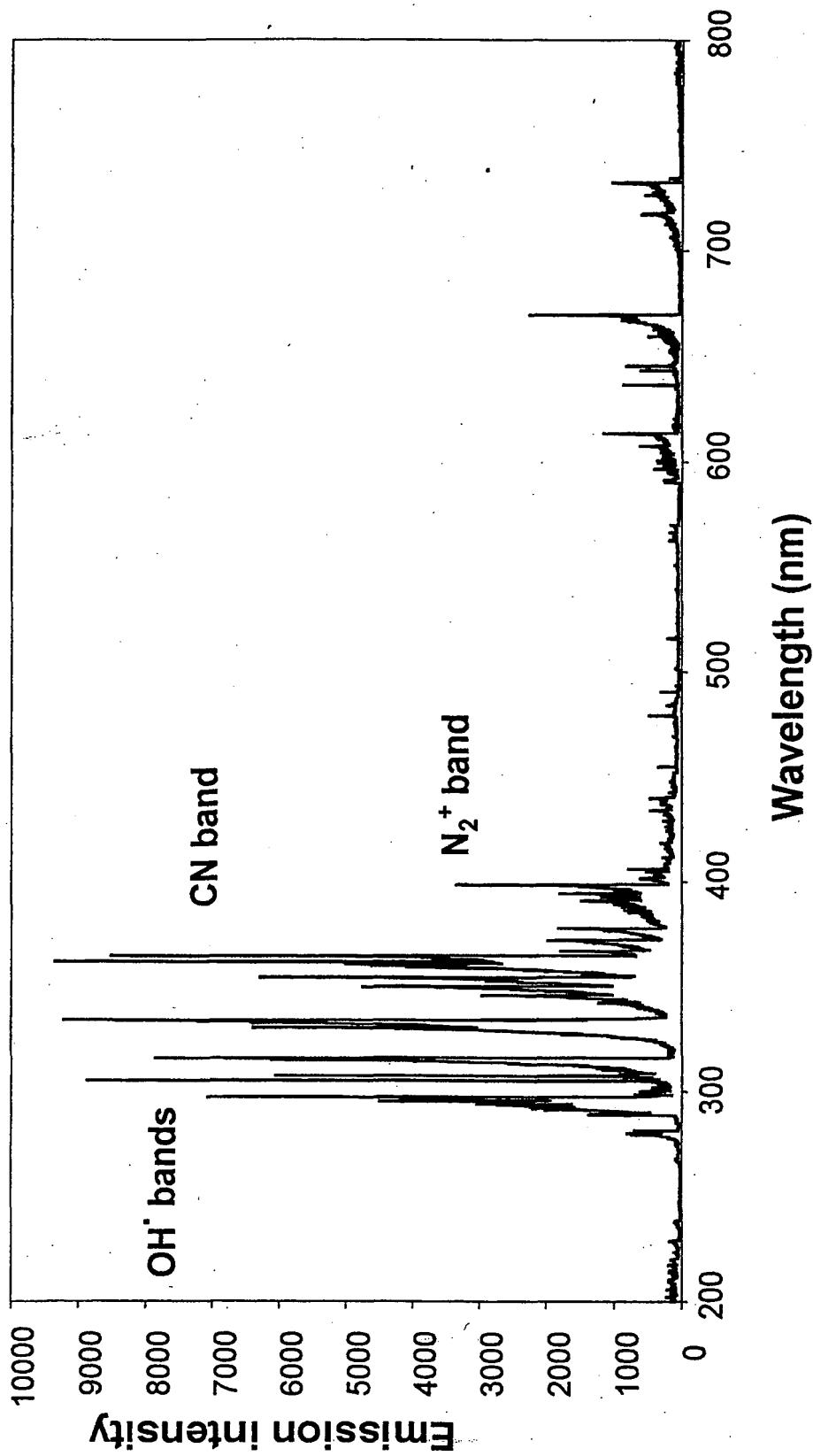
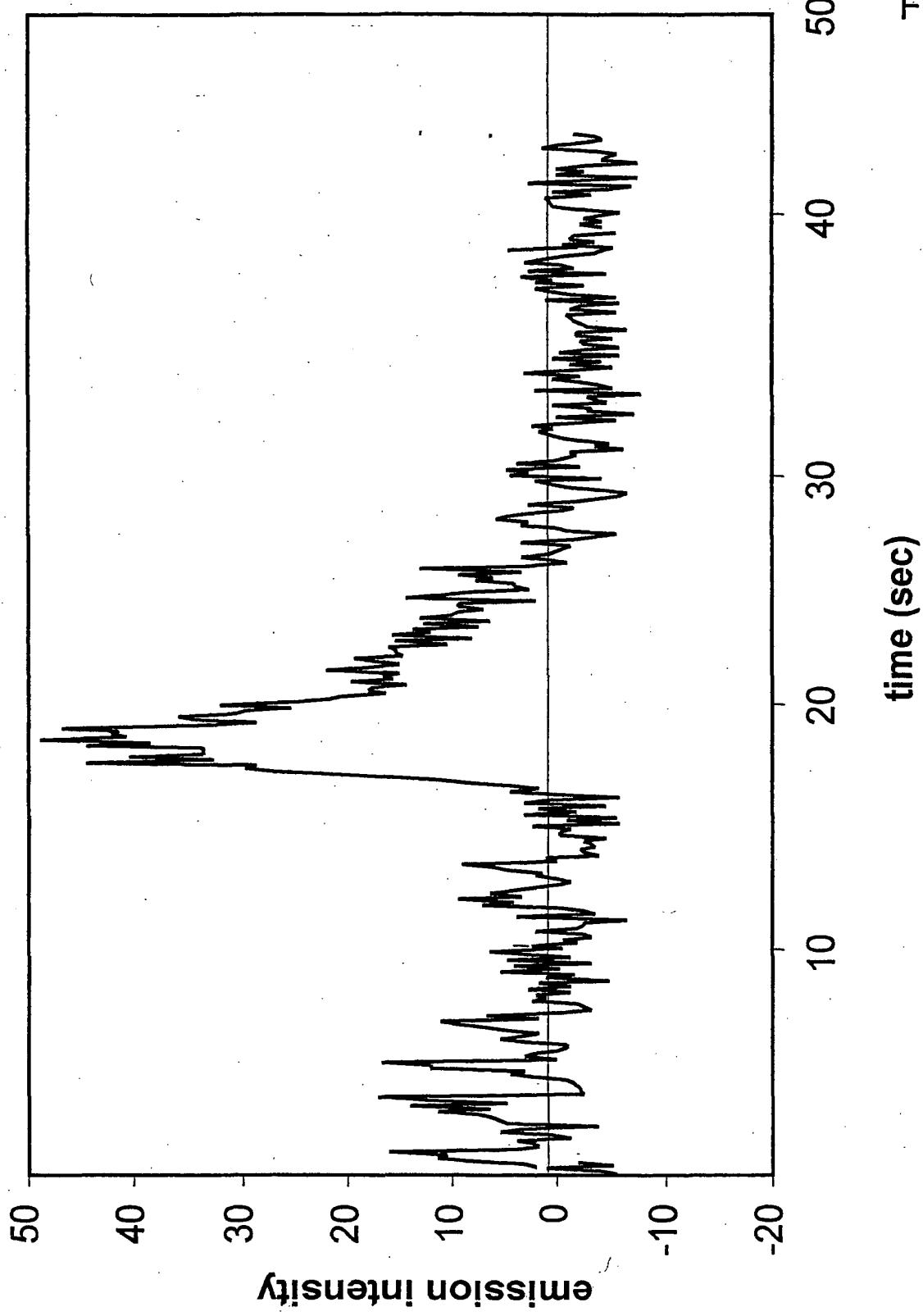


Fig. 6



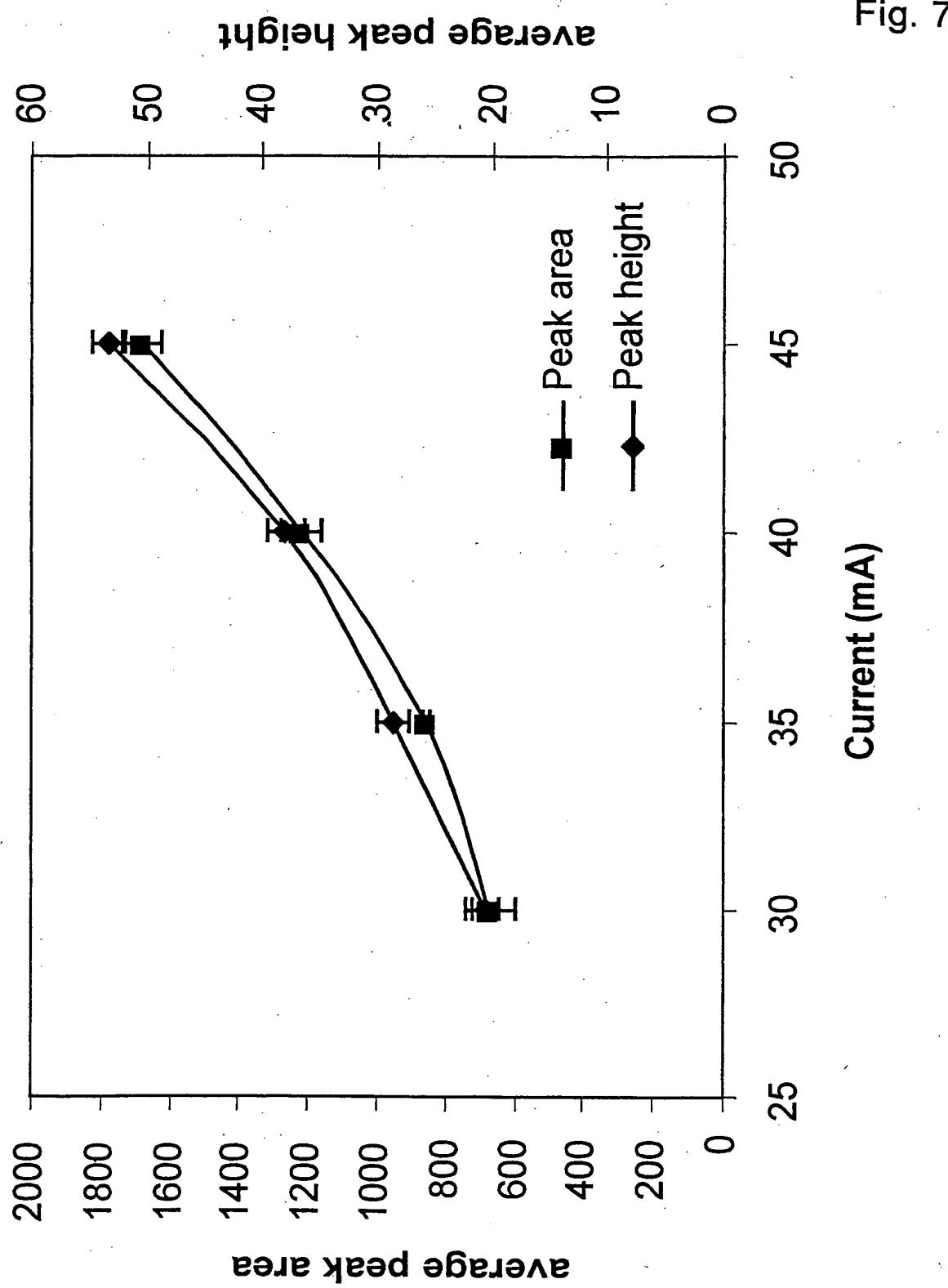
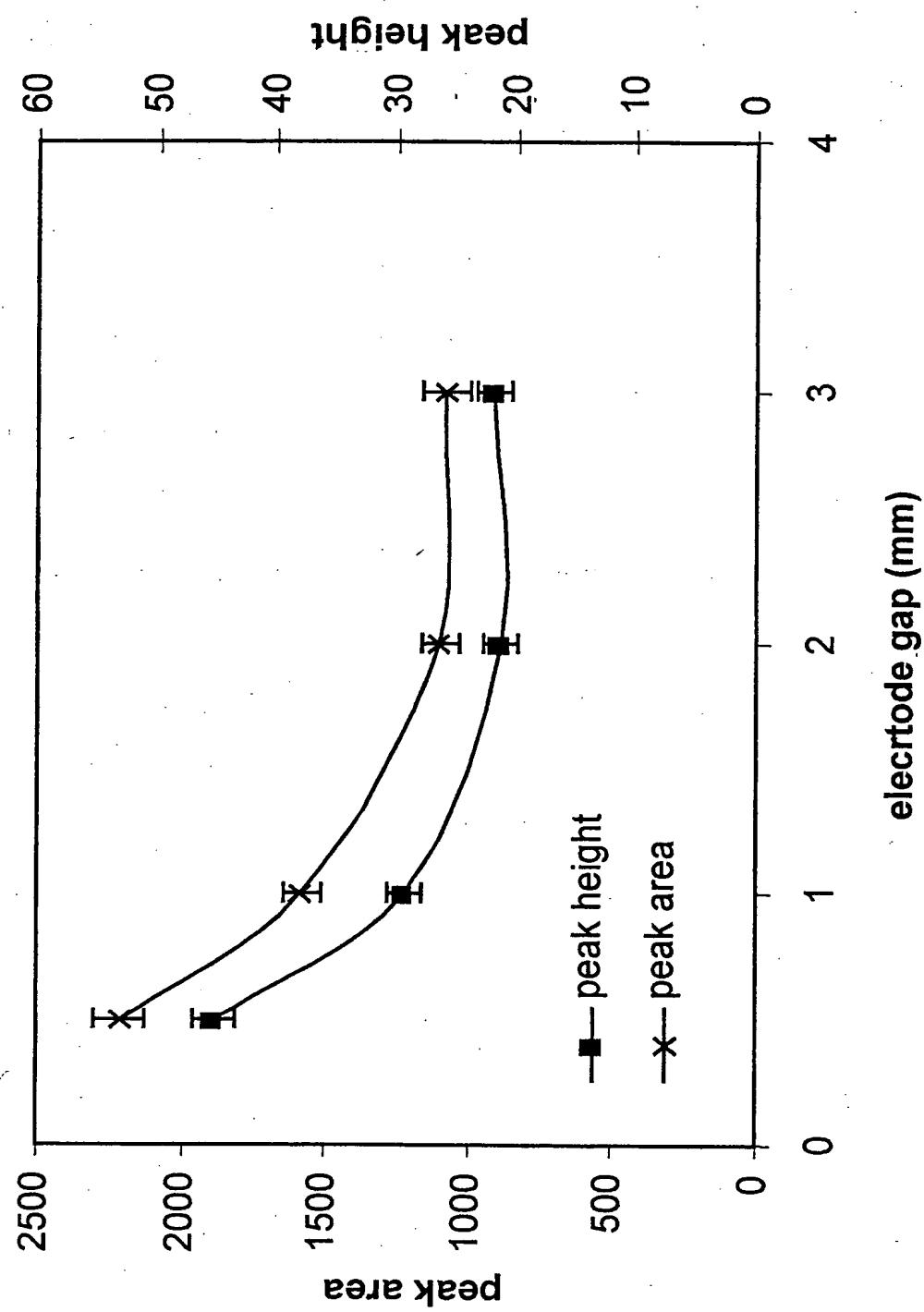


Fig. 8



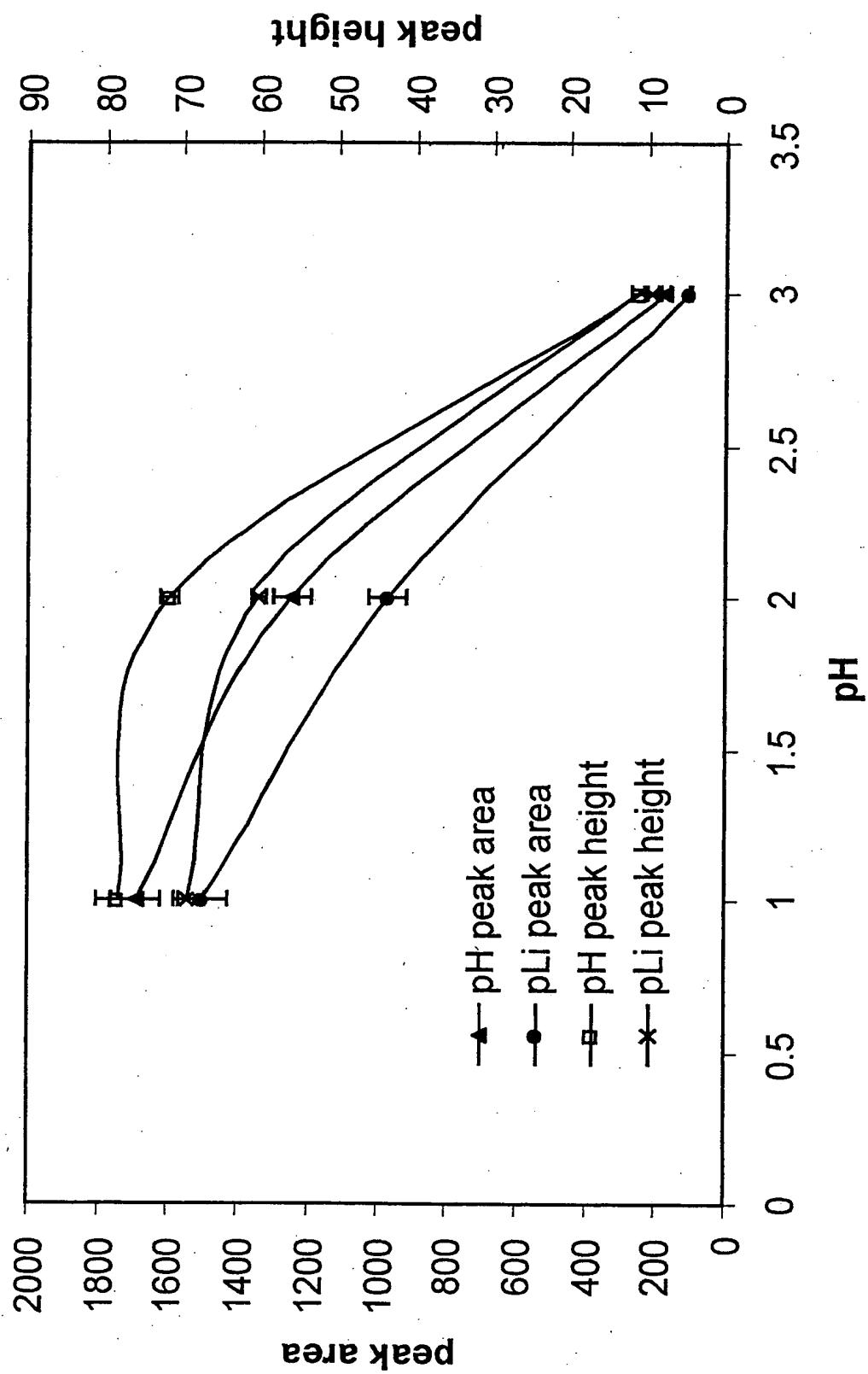
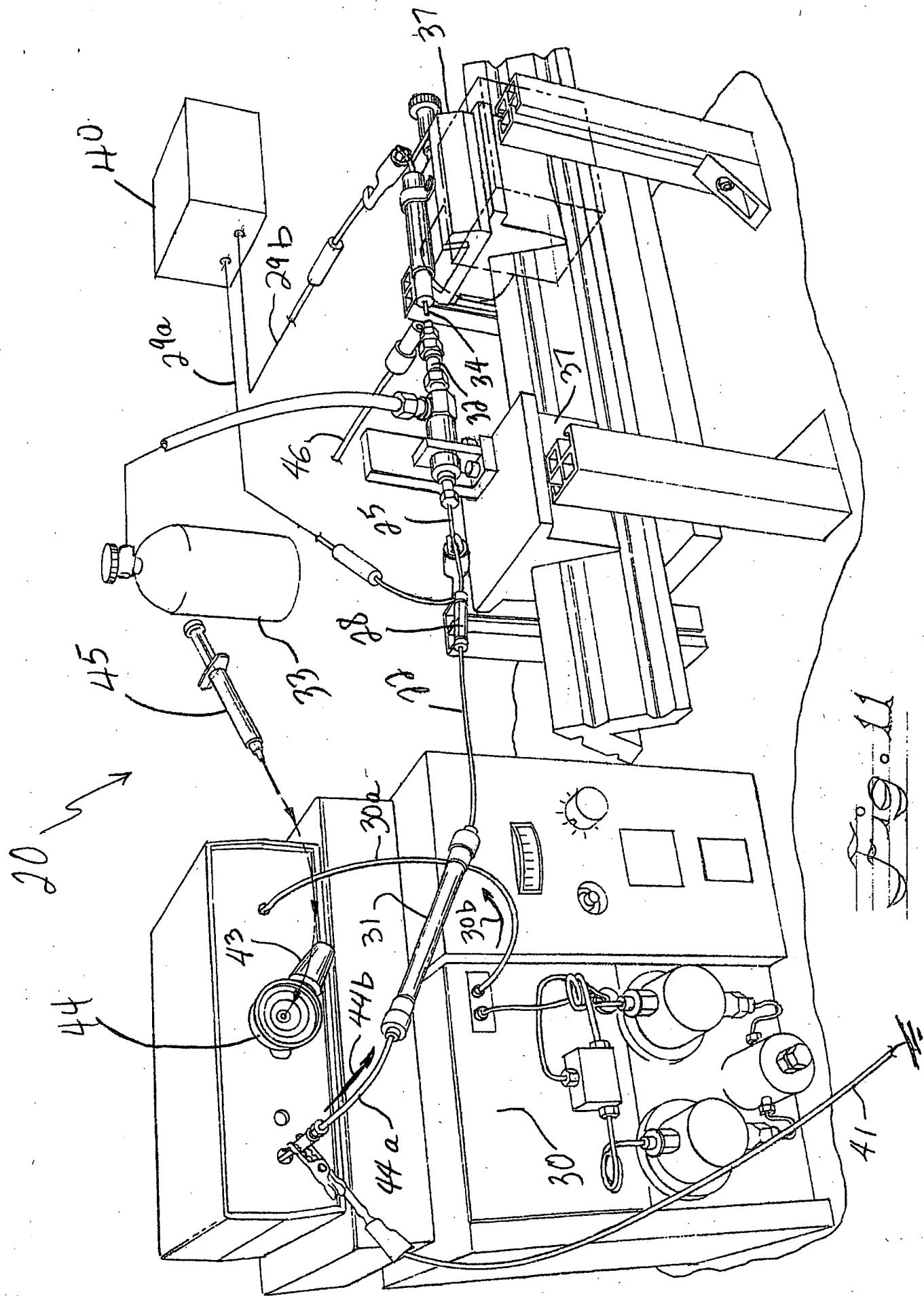


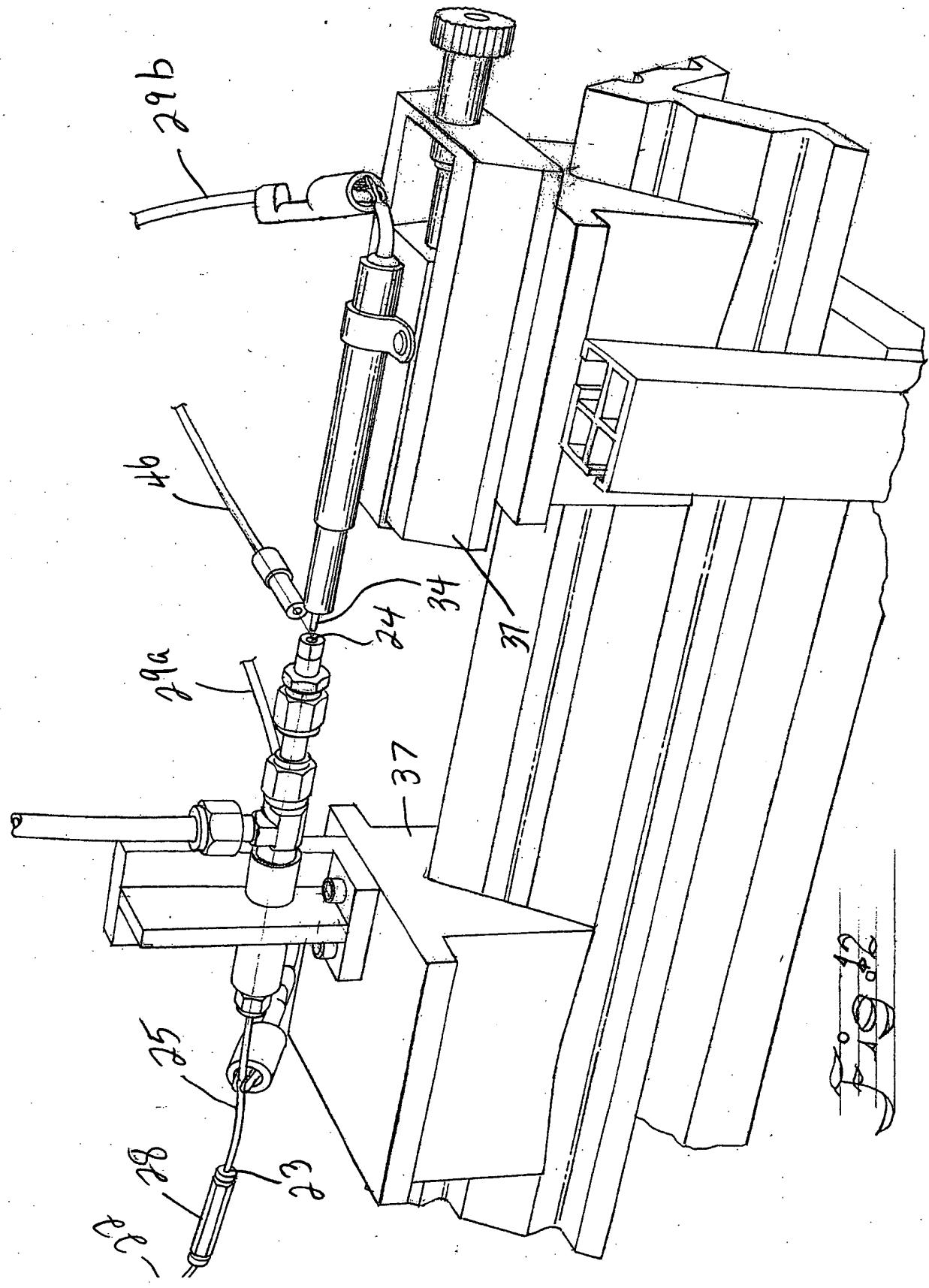
Fig. 9

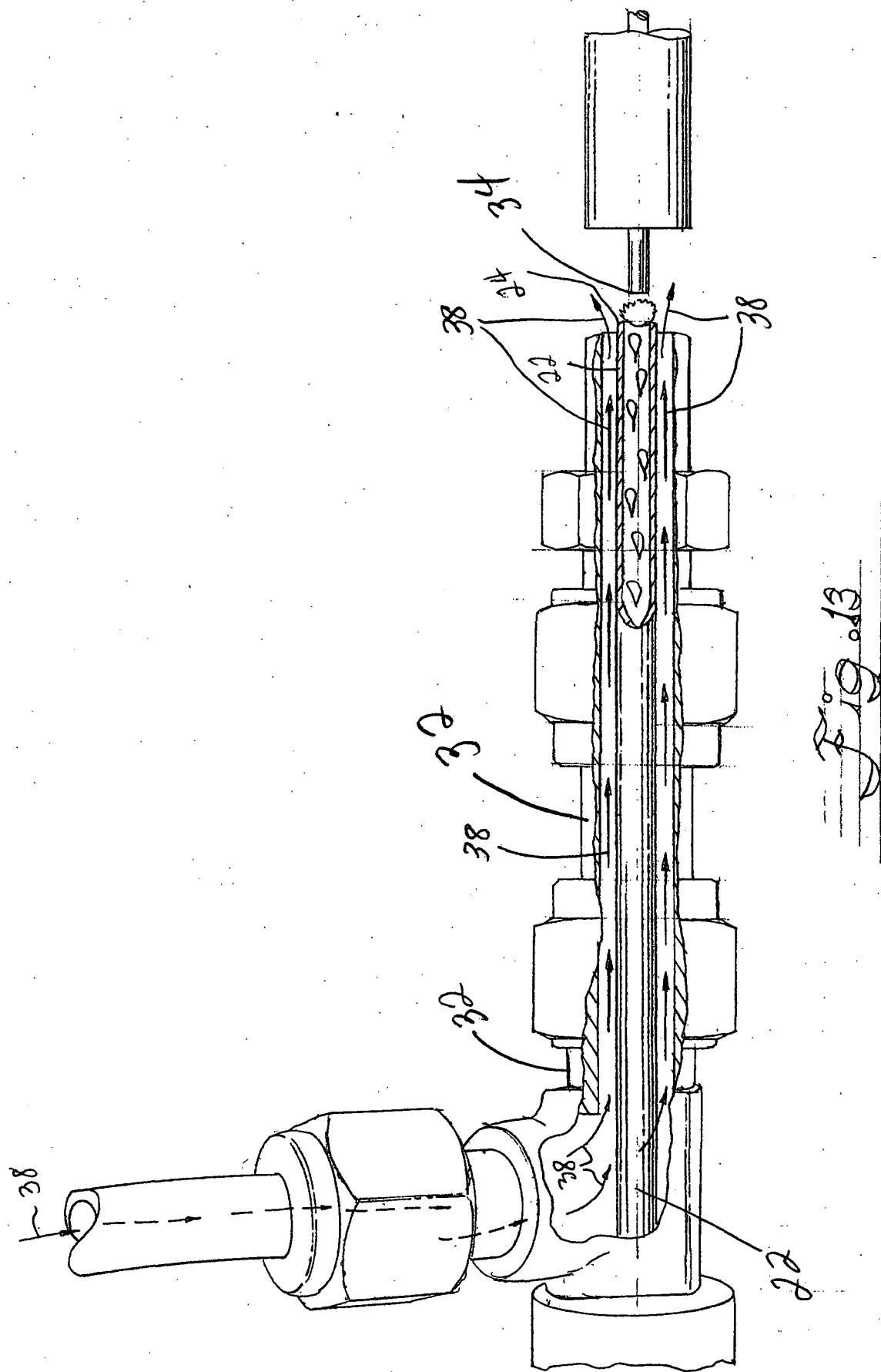
Analytical response functions and limits of detection for the LS-APGD device. Solution flow rate = 1 mL/min, electrolyte pH = 1, inter-electrode gap = 1 mm, injection volume = 5 μ L.

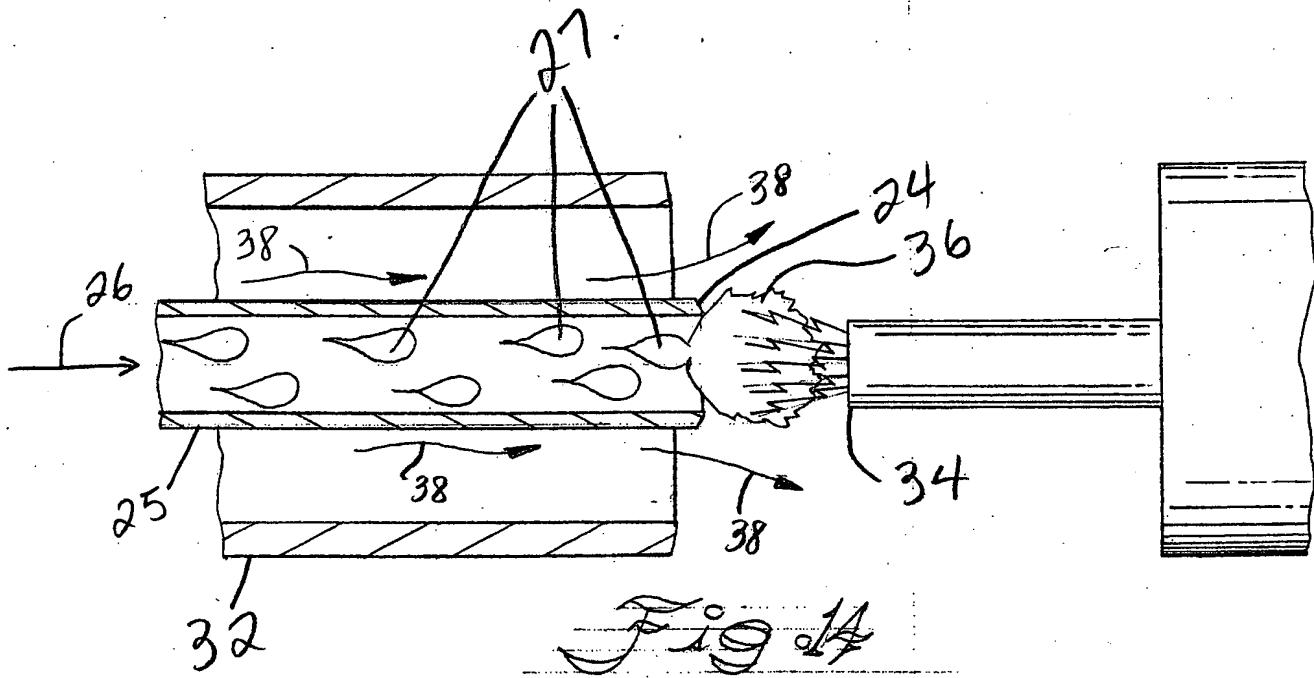
Element	wavelength (nm)	peak height eqn. R ²	peak area eqn. R ²	LOD ppm (ng)
Na	589.0	y=0.421x + 42.8 0.9859	y=15.81x + 978.6 0.9784	12 (60)
Fe	248.3	y=1.06x - 102.1 0.9365	7=45.80 x - 6649 0.909	12 (60)
Pb	405.8	7=1.18x - 10.45 0.977	7=16.16x - 419.7 0.9298	14 (70)

FIG. 10









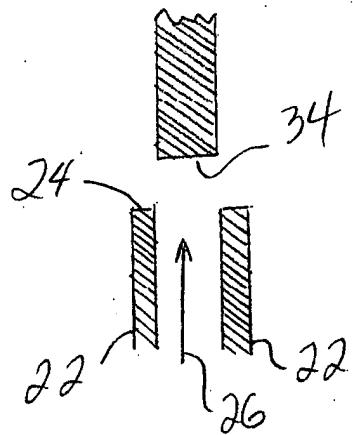


FIG. 15A

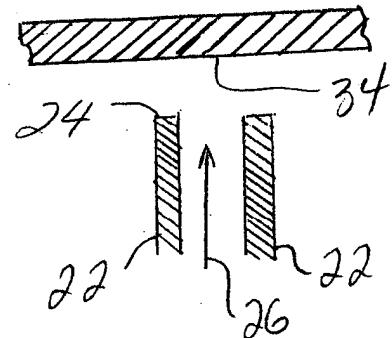


FIG. 15B

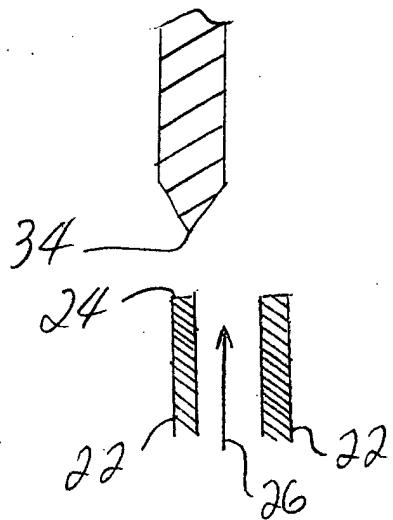


FIG. 15C

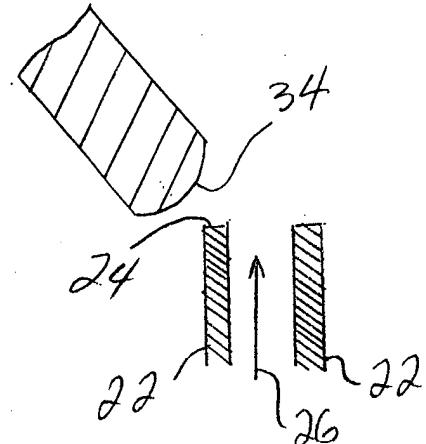


FIG. 15D

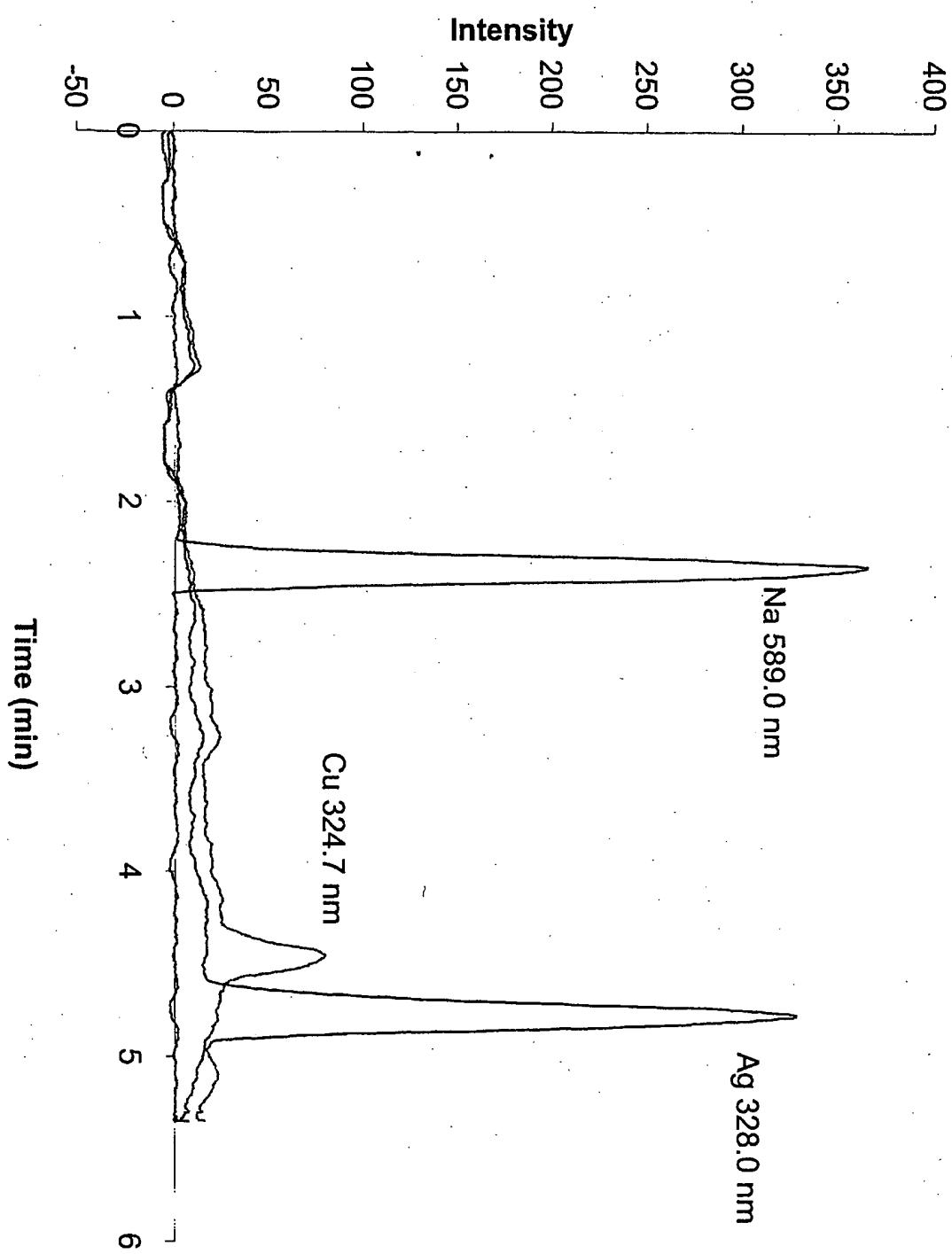


FIG 16